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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/781,795 02/12/01 RUPPERT

M 60,130-1004

EXAMINER

PM82/0509

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ART UNIT

PAPER NUMBER

3611

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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
09/781,795

Applicant(s)
Ruppert, Jr., et al.

Examiner
Frank Vanaman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 23-50 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 23-50 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on Feb 12, 2001 is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- *See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892) 18) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 19) ☐ Notice of Informal Patent Application (PTO-152)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 2 20) ☐ Other:

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Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the first and second electric motors mounted at least partially within a wheel hub periphery must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Claim Objections

2. Claim 47 is objected to because of the following informality: on line 4, 'defining and axis' should be --defining an axis--. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. Claim 47 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 47 refers to first and second electric motors mounted at least partially within a common outer wheel hub periphery, however the specification *as originally filed*, appears to provide no support for such a limitation.

4. Claims 42-45 and 47 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 42, it is not clear whether or not a further limitation beyond that recited in claim 23, lines 13-14 is being recited; similarly compare claims 43 and 35, claims 44 and 26, etc., and further note that as currently set forth, claim 42 depends from claim 23. The desired claim dependencies should be carefully reviewed and revised if needed. In claim 47, line 78 and 19, the recitation of a common outer periphery associated with two separate units is confusing.

Double Patenting

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible

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harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claims 23-36, 38, 40-46 and 48-50 provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 24, 32 and 33 of copending Application No. 08/801,531. Although the conflicting claims are not identical, they are not patentably distinct from each other because it is not considered to be beyond the skill of the ordinary practitioner to provide a planetary gear set incorporated into a wheel hub (e.g., claim 24), make a pair of abutting elements integral (e.g., claim 30), or orient a pair of longitudinal elements driving the same transverse element in a coaxial manner (claim 46).

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Applicant is reminded that while the claims are not currently patented, the copending application has been allowed.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 23-28, 36, 37, 40, and 42-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Travis in view of Eichinger (US 3,933,217). Travis teaches a drive unit

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assembly (10) comprising a first driving axle shaft (18), a second driving axle shaft (20), the first and second driving axle shafts being oriented along the same turning axis, first and second respective wheels and wheel hubs, the respective wheel hubs being driven by respective bevel-ring gears (e.g., 37) which are engaged by bevel-pinion gears (38) in gearboxes (12) which are in turn mounted to motors (40) which are oriented at non parallel angles to the turning axis of the driving axle shafts, including at least two motors driving each wheel hub, wherein each of the bevel-ring gears may be engaged by each of two motors. The reference of Travis fails to teach a further planetary gear drive driven by the bevel-pinion gear sets. Eichinger teaches a wheel (8) having a hub (24, 25) which may be described as a gear box (9, 21, 30), which surrounds a planetary gear set (14, 15, 22), and driven by a lateral shaft (11). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the planetary gear set taught by Eichinger, one each interposed between the each of the driven shafts (18, 20) and each of the wheels of Travis, for the purpose of speed reduction, in order to allow the motors to run at an efficient speed.

9. Claims 29, 30 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Travis in view of Eichinger and Kawamoto et al. (US 5,419,406). The references of Travis and Eichinger are discussed above and fail to teach the planetary ring gears as driving the drive shafts (e.g., 18, 20), with the planetary gears being located in the gearboxes. Kawamoto et al. teach a motor drive scheme for a vehicle wherein two wheels (W, W') are driven by two motors (1), each motor being provided with an attached gearbox (3b) and a planetary gearing system (2, 22, 23, 24, 25...) which drives a wheel shaft (4). It would have been obvious to one of ordinary skill in the art at the time of the invention to locate the planetary gearing of the reference of Travis as modified by Eichinger in a gearbox proximate the motor, rather than at the wheel, as taught by Kawamoto et al., for the purpose of reducing the rotation speed of a greater portion of the drive train.

As regards claim 30, while the references of Travis, Eichinger and Kawamoto et al. fail to specifically teach the planetary rings and driving axles as being integral, it is well known to make

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parts integral for the purpose of reducing assembly costs and reducing failure points, and as such, it would have been obvious to one of ordinary skill in the art at the time of the invention to make the planetary rings integral with the driving axles for the purpose of enhancing the reliability of the drive train of the reference of Travis as modified by Eichinger and Kawamoto et al. while reducing costs associated with its construction.

10. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Travis in view of Eichinger and "Tatra-Werke" (CH 179,299). The references of Travis and Eichinger are discussed above and fail to teach the motors as being mounted on a common axle housing extending along a lateral axis of rotation. "Tatra-Werke" teaches an electrically driven wheel (7) wherein a motor (9) is mounted on a common axle housing (1, 2) which extends along a wheel axis of rotation (e.g., 'X' being parallel to the wheel rotation axis). It would have been obvious to one of ordinary skill in the art at the time of the invention to mount the motors taught by Travis as modified by Eichinger along a common axis which lies along the wheel axis of rotation, as taught by "Tatra-Werke" for the purpose of balancing the wheel/motor mounting arrangement.

11. Claim 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over Travis in view of Eichinger and Anglada (US 1,543,044, cited by applicant). The references of Travis and Eichinger are discussed above and fail to teach the motors as being mounted at a 90 degree angle extending vertically upwardly from the lateral axis of rotation. Anglada teaches a pair of electric motors (15, 15) for driving wheels (14, 18, 19) wherein the motors are each mounted in a vertical orientation (figures 1, 2). It would have been obvious to one of ordinary skill in the art at the time of the invention to mount the motors of the reference of Travis as modified by Eichinger in a vertical configuration as suggested by Anglada for the purpose of conserving longitudinal space in the vehicle.

12. Claim 48 is rejected under 35 U.S.C. 103(a) as being unpatentable over Austin in view of Quartullo. Austin teaches a passenger vehicle having a plurality of seats located on higher floor portions and a centrally located aisle located on a lower floor portion, wherein an engine, for

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driving the vehicle wheels is located higher than the aisle floor. The reference of Austin fails to teach the wheels as being driven by electric motors mounted at a right angle to the wheel rotational axes and driving the wheels through a gearing system.

Quartullo teaches a vehicle having a body and a pair of wheels, each wheel driven by a motor through a 90 degree angle, the driving force being transmitted through a worm-drive gear set, and wheel axle to wheel hubs, wherein a floor of a vehicle has a lower extent in a central location, and an upper extent, wherein the motors are mounted vertically higher than the central floor portion. It would have been obvious to one of ordinary skill in the art at the time of the invention to replace the wheel driving engine of the vehicle of Austin with the individual electric drives taught by Quartullo for the purpose of allowing the driven wheels to be independently suspended, as suggested by Quartullo.

Claims Not Rejected on the Prior Art

13. Claim 47 is not rejected as being anticipated by or unpatentable over the prior art, but the claim is rejected under 35 USC §112, first paragraph, and would not be in condition for allowance until the resolution of the 35 USC §112 first paragraph issues.

Response to Arguments

14. In response to applicant's argument that the references must explicitly provide a suggestion for combining, a conclusion of obviousness may be made from common knowledge and common sense of the person of ordinary skill in the art without any specific hint or suggestion in a particular reference (see *In re Bozek*, 416 F.2d 1385, 1390, 163 USPQ 545, 549 (CCPA 1969)), with skill being presumed on the part of the artisan, rather than the lack thereof (see *In re Sovish* 769 F.2d 738, 742, 226 USPQ 771, 774 (Fed. Cir. 1985)); further, references may be combined although none of them explicitly suggests combining one with the other (see *In re Nilssen* 7 USPQ2d 1500 (Fed. Cir. 1989)).

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Applicant's comments that the presence of a pair of bevel ring and pinion gears would teach against the further application of a planetary reduction set are not persuasive in view of the relatively high speed that electric motors operate at for the sake of efficiency, and it is not considered to be beyond the skill of the ordinary practitioner to provide both a pinion and ring set as well as a planetary set in order to allow a greater reduction of speed than would ordinarily be available from a simple bevel pinion and ring gear set.

As particularly regards the references to Austin and Quartullo, applicant is additionally reminded that the reference of Quartullo does provide a motivation, in that the provision of independent wheel drives allows an enhancement in the provision of independent suspension of the wheels.

Applicant's comments concerning the Austin and Quartullo references have been considered but are not persuasive, in that it is not necessary to modify Austin reference to position its internal combustion engine above a floor location, as this is already the case in Austin (note engine 10 and its relationship to floor portions 16 and 18). In the rejections the examiner has proposed that it is not beyond the skill of the ordinary practitioner in the art to replace the engine, already taught by Austin to have a portion located above the floor (please refer again to figure 1), with a pair of independent electric drives, as suggested by the driving system of Quartullo, in order to provide independent suspension of the driving wheels. The Examiner has not suggested that it would be obvious to mount the motors of Quartullo in some other location in the Austin vehicle beyond the location already taught by Austin for its internal combustion engine. Applicant's arguments concerning a reduction in baggage area are noted but are not at all clear, in that it has not been suggested that the electric drives taught by Quartullo should be mounted in the baggage area.

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Higasa et al. (US 5,465,806), Goertzen et al. (US 5,853,059), (GB 339,241), Tatra-

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Werke (SE 85880), Tennant (GB 454,464), and Higasa et al. (WO 90/11,905) teach vehicle structures of pertinence.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to F. Vanaman whose telephone number is (703) 308-0424. Any inquiry of a general nature or relating to the status of this application should be directed to the group receptionist whose telephone number is (703) 308-1113.

Any response to this action should be mailed to:

Assistant Commissioner for Patents
Washington, DC 20231

or faxed to :

(703) 305-3597 or 305-7687 (for formal communications intended for entry;
informal or draft communications may be faxed to the same number but should be
clearly labeled "UNOFFICIAL" or "DRAFT")

F. VANAMAN
Primary Examiner
Art Unit 3611

F. Vanaman
May 2, 2001

Handwritten signature of F. Vanaman, dated 5/2/01.